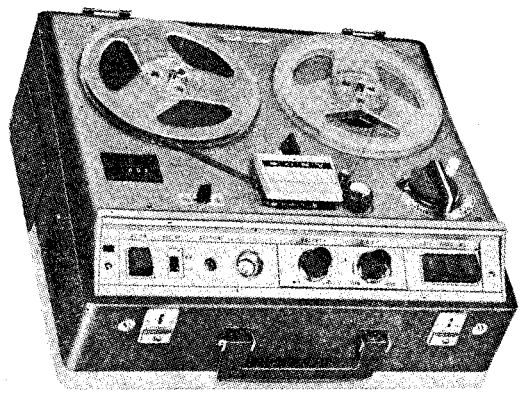
SONY®

SERVICING GUIDE

TAPECORDER
Model-362B



Specifications for Model-362B

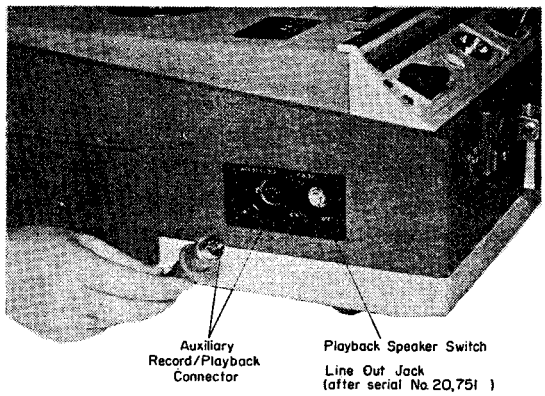
Dimensions :	16-7/8″ × 14-3/8″ × 8-1/8″ (429 × 365 × 206 mm)
Weight :	34. 1 lbs (15.5 Kg)
Power Requirements :	100 Volts (110, 117, 125, 220 and 240 Volts convertible by voltage adapter provided in the set), 50 or 60 cps (convertible by replacing capstan and pinch roller)
Reel Size :	Up to 7″
Tape Speed :	7-1/2 ips, 3-3/4 ips and 1-7/8 ips instantaneous selection
Playing Time :	60 minutes with 7″ reel at 7-1/2 ips. 120 minutes with 7″ reel at 3-1/4 ips. 240 minutes with 7″ reel at 1-7/8 ips.
Wow and Flutter :	Less than 0.3% at 7-1/2 ips. 0.4% at 3-3/4 ips. 0.5% at 1-7/8 ips.
Frequency Response :	40—15,000 cps at 7-1/2 ips. 50— 9,000 cps at 3-3/4 ips. 50— 5,000 cps at 1-7/8 ips.
Signal-to-Noise Ratio :	Better than 40 db at standard recording level* Approx. 50 db at max. recording level
Input :	2 for microphone, 1 for high level (up to 4 V) and 1 for medium level (up to 0.4 V)
Output :	1 for monitoring (external speaker) and 1 for line out
Output Power :	2 watts minimum
Speaker :	7-1/16″ × 4-3/4″ oval PM dynamic, 8Ω
Tube and Transistor complement :	1-6BM8, 1-6 AR 5, 1-6CA4, 1-6ME5, 1-2SD64, 1-2SD65, 1-1T22G diode
Recording Level Indication :	Magic Eye (6ME5)
Bias Frequency :	Approx. 48 Kc
Recording Track	Dual Track

* The standard recording level is defined as the level which is 8 db lower than the saturation of the tape.

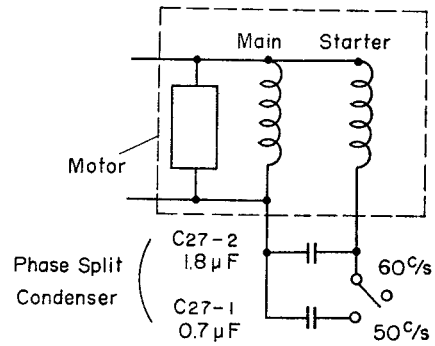
Features of Model-362B

Auxiliary Rec/PB Connector (European Standard " Din " Connector)

Auxiliary Rec/PB Connector with the designation of " Aux. REC./PB " is located on the left side of the cabinet. This connector is used for recording and playback through external pre-amplifiers, power amprifiers and radio having " Din Socket " by using the specially designed 5-pin connecter. (Fig. 1)



(Fig. 1)



(Fig. 2)

AC Frequency Setting of Motor

AC Frequency Setting Switch located on the right of the Take-up Reel Spindle selects the operating AC power line frequency of either 50 cps or 60 cps for the motor. The circuit diagram is shown in Fig. 2.

The reason why the capacitance of the phase split condenser (Fig. 5) should be changed for different line frequency is to maintain the performance of motor in satisfactory condition at 50 cps or 60 cps. Motor speed cannot be controlled by changing the AC Frequency Setting Switch.

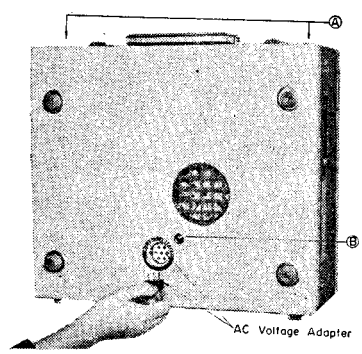
Capstan and Pinch Roller also should be replaced with correct ones.

Playback Speaker Switch (After serial No. 20,751, Playback Speaker Switch is replaced with Line Out Jack)

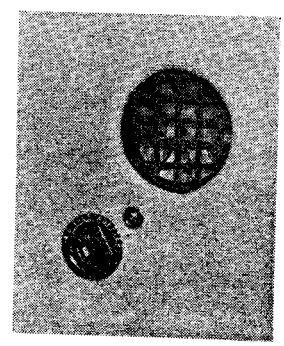
Playback Speaker Switch designated " P. B. SP. " is located next to the auxiliary Rec/PB connector. When the playback speaker switch is set at " OFF " position, the speaker of Tapecorder 362-B is cut off. (Fig. 3-1)

AC Voltage Adapter

AC Voltage Adapter is a connector with three pin black cap located on the bottom of the cabinet. It serves to match the set to the AC power line voltage of either 250 V, 220 V, 117 V, 110 V or 100 V. Adapter should be checked if it is set properly for the local power line voltage. (Fig. 3-2)



(Fig. 3-1)



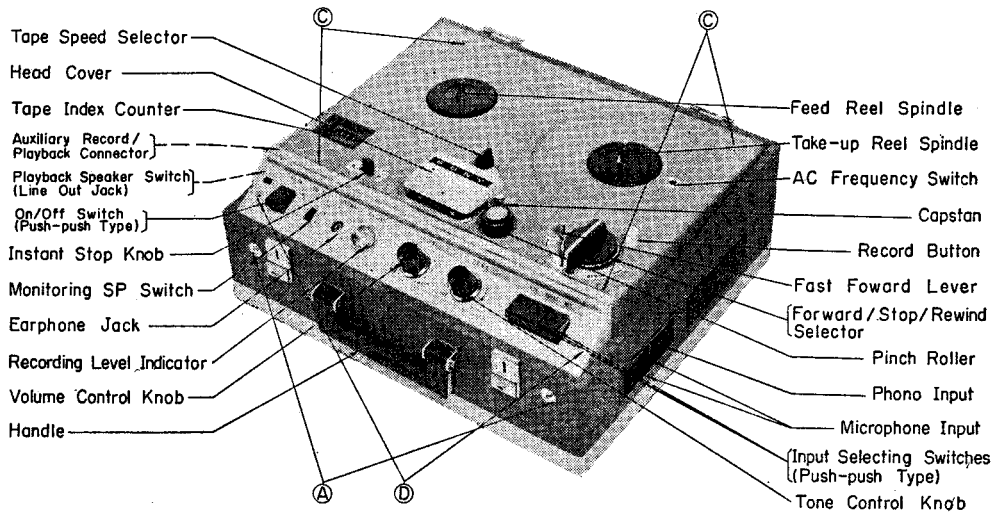
(Fig. 3-2)

Tape Speed Selector Knob

Tape Speed Selector Knob located in the center of the top panel directly behind the head cover controls all the three tape speeds. See the following table.

Tape Speed	Idler contacts with	Number of Motor Pole
7-1/2 ips	the lower part of the motor pulley	4
3-3/4 ips	the upper part of the motor pulley	4
1-7/8 ips	the upper part of the motor pulley	8

* The motor is of double pole type. (Fig. 12 on page 14)



(Fig. 4)

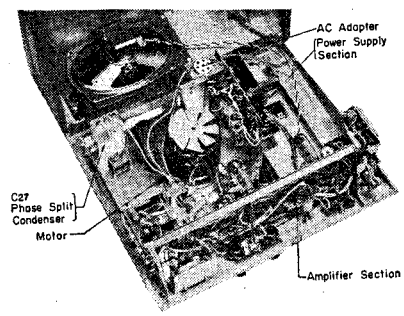
Recording Monitor Speaker Switch

Recording Monitor Speaker Switch (SW 3 in the schematic diagram) designated " REC. SP." is located on the left of the control panel. This switch controls the built-in speaker and Monitor Earphone Output Circuit. When the switch is set at " ON " position, monitor can be made with built-in speaker. Keeping the switch at " ON " position, when the earphone jack (J 5) is used for monitoring, the speaker circuit is automatically cut off. WHEN THE MONITOR SWITCH IS SET AT " OFF " POSITION, THE MONITOR CIRCUIT IS CUT OFF. (Fig. 4)

Removal of Cabinet

1) Remove two Phillips screws (plus screws) next to the locks on the handle side of the cabinet. (Ⓐ in Fig. 4)
2) Remove one Phillips screw (plus screw) near AC adapter at the bottom of the cabinet. (Ⓑ in Fig. 3-1)
3) Turn over the machine upside-down and put it on the table covered with soft cloth to avoid being scratched. Lift the cabinet gently, and the deck will be left on the table. (Fig. 5)

View of Model-362 B with the Cabinet Removed



(Fig. 5)

Removal of Top Panel

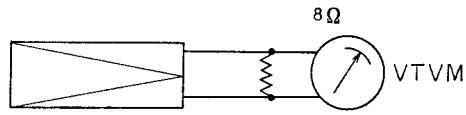
1) Take off head cover and instant stop knob by pulling up straight.
2) Take off pinch roller by removing the set screw.
3) Take off tape speed selector knob and forward/stop/rewind selector knob by loosening the set screws.
4) Take off fast forward lever under the forward/stop/rewind selector. Be careful not to pull it too much. Otherwise, the spring will be stretched permanently.
5) Remove four Phillips screws (plus screws) at each corner of the top panel. (Ⓒ in Fig. 4)

Removal of Control Panel

1) Take off volume control knob and tone control knob by loosening the set screws.
2) Remove two Phillips screws (plus screws) on the both sides of the control panel. (Ⓓ in Fig. 4)

Electrical Adjustment

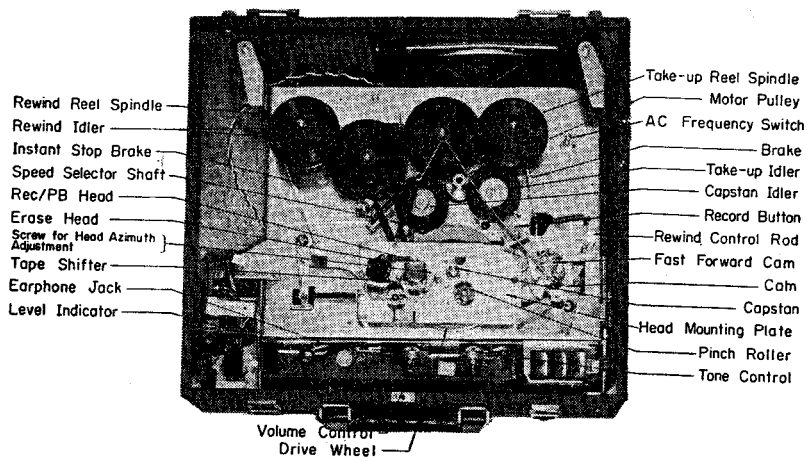
1) Head Azimuth Alignment
   a) Connect an 8 ohm load resistor in parallel with the VTVM. Connect the VTVM to external speaker jack J 5.



(Fig 6)

   b) Play-back 7,000 cps signal on the Alignment tape at 7-1/2 ips speed.
   c) Adjust screw on the right side of the Rec/PB head to obtain maximum reading on the VTVM scale. (Fig. 7)

Mechanical Section of Model-362 B

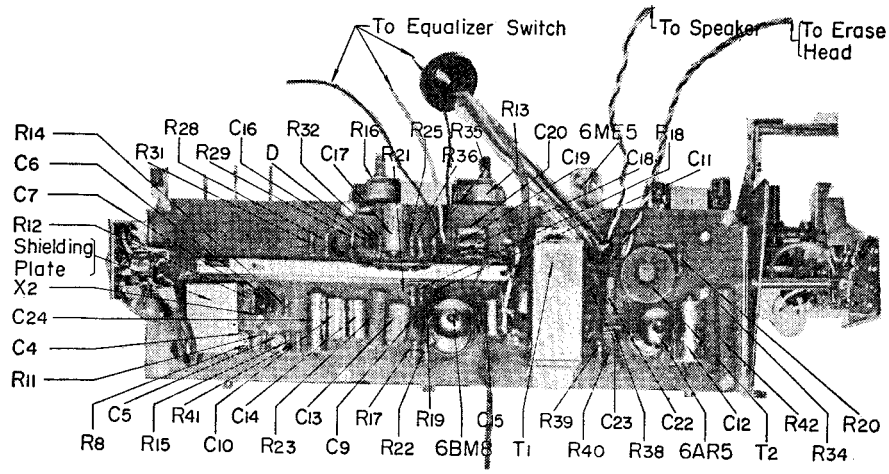


(Fig. 7)

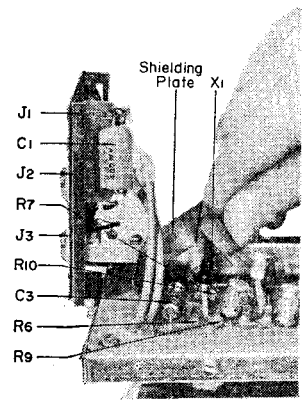
2) Recording Bias Adjustment
   a) Set the machine at " Record."
   b) Connect VTVM across winding of the Rec/PB head.
   c) Set the volume control R 16 at the minimum position.
   d) Adjust the mica trimmer capacitor C 21 so that the VTVM indicates 70–80 V.

3) Recording Level Indicator
   a) Connect VTVM and 8 ohm resistor to external speaker jack J 5 as shown in Fig. 6.
   b) Set the machine at " Record."
   c) Set the monitor switch at " ON " position.
   d) Apply 1,000 cps signal of —55 dbs (1.35 mV) to MIC INPUT jack 1 or 2 and adjust volume control R16 to obtain indication of —4 dbs (470 mV) on the VTVM scale.
   e) Adjust potentiometer R 27 (100 K ohms) so that the green lights on Magic Eye get fully closed.

Mounted Side of Amplifier Section

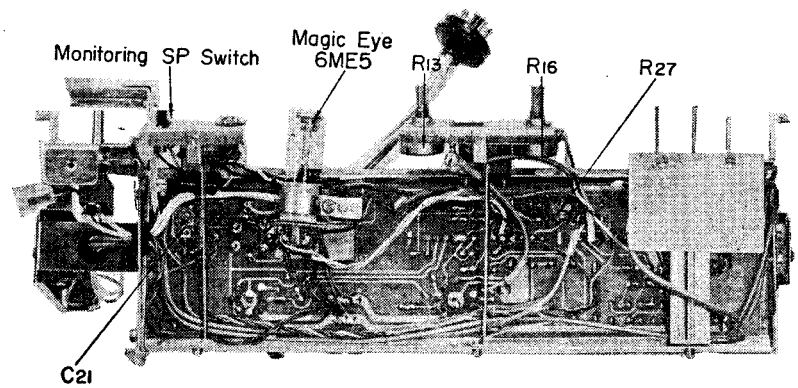


(Fig. 8-1)



(Fig. 8-2)

Printed Side of Amplifier Section

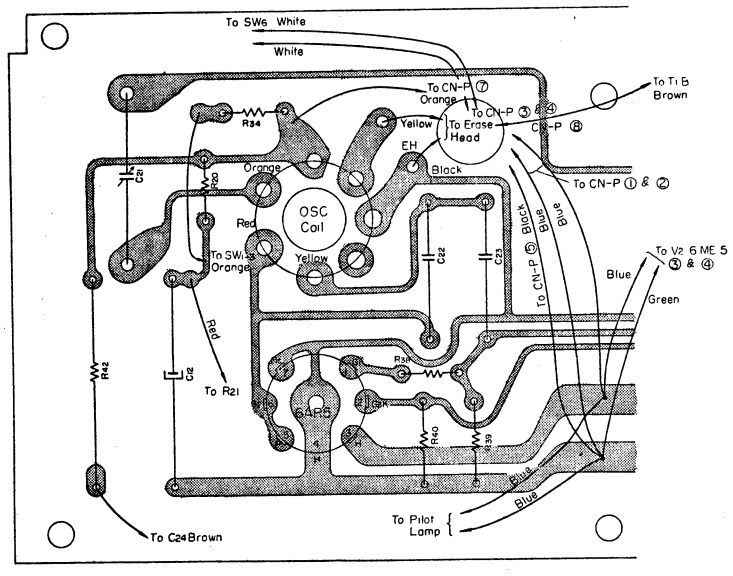


(Fig. 9)

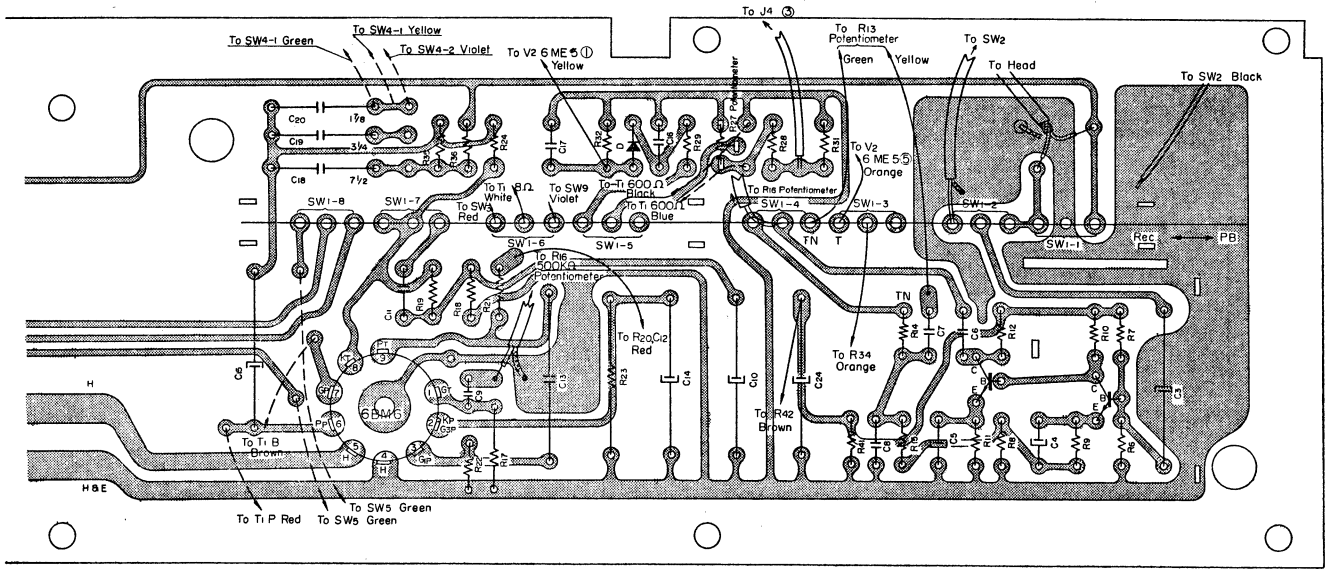
Electronic Parts List for Model-362 B

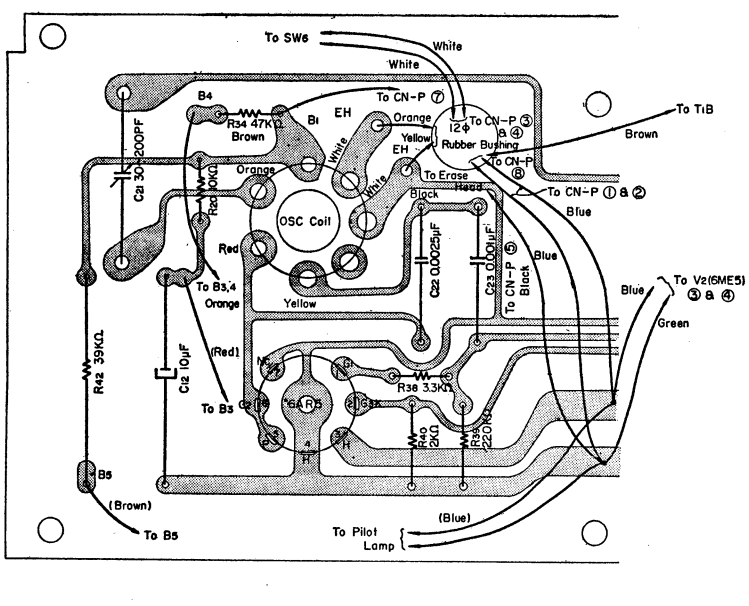
Part No.	Symbol	Component	Description
	X1	Transistor	2SD643
	Y2	〃	2SD651
	D	Diode	1T22G
1-525-018	V1	Vacuum tube	6BM8
1-525-035	V2	〃	6ME5
1-525-008	V3	〃	6AR5
1-525-019	V4	〃	6CA4
1-507-028	J1	Phono jack	SB-12541
1-507-016	J2	Mic. jack	SB-11789
1-507-016	J3	〃	〃
1-509-027-00	J4	AUX. REC/P. B jack	SB-13821
1-507-028	J5	Earphone jack	SB-12541
1-427-030	T1	Output transformer	SB-12510
1-433-014	T2	Bias oscillator transformer	SB-13282
1-441-033-00	T3	Power transformer	SB-12591
	CN-P	Connector for power supply (plug)	US Plug
1-526-001	CN-J	〃 (jack)	US socket
	R. P. H.	Rec./PB head 4 track	PP15-02
	E. H	Erase head 4 track	EF-3
1-518-011	P. L	Pilot lamp	6-8 V 150 mA
1-502-043	SP	Speaker oval type 7-1/16" × 4-3/4"	SB-12557
1-532-006	F	Fuse 1 A	SB-13220
	M	Motor	HC-634D-2
1-513-108	SW1-1-8	Rec./PB switch	SB-13287
1-513-100	SW2-1-3	Input change switch	SB-13237
1-514-008-02	SW3	Monitor speaker switch	SB-11499
	SW4-1-2	Equalizer switch	
	SW5	Safety switch	
1-514-045	SW6	Power switch	SB-13281
1-514-012	SW7	Frequency switch	SB-11198
1-514-046	SW8	Speed change switch	SB-13291
1-513-085	SW9	Playback Speaker switch	SB-12505
1-203-118-00	R1	Carbon resistor	1 MΩ RD 1/4 t±5%
1-203-125-00	R2	〃	82 KΩ 〃
	R3	〃	10 KΩ 〃
	R4	〃	10 KΩ 〃
	R5	〃	5.6 KΩ 〃
1-203-934-00	R6	〃	47 KΩ 〃
1-203-936-00	R7	〃	470 Ω 〃
1-203-933-00	R8	〃	68 Ω 〃
	R9	〃	15 KΩ 〃
1-203-935-00	R10	〃	120 KΩ 〃
	R11	〃	10 KΩ 〃
	R12	〃	22 KΩ 〃
1-221-075	R13	Potentiometer	15 KΩ B 〃
	R14	Carbon resisto.	4.7 KΩ RD 1/4 t±5%
	R15	〃	2.2 KΩ 〃
1-221-076	R16	Potentiometer	500 KΩ B
1-203-338-00	R17	Carbon resistor	470 KΩ RD 1/4 t±5%
	R18	〃	3.3 KΩ 〃
	R19	〃	1 KΩ 〃

Part No.	Symbol	Component	Description
	R20	Carbon resistor	10 KΩ RD 1/4 t± 5%
1-203-100-00	R21	〃	100 KΩ 〃
1-203-338-00	R22	〃	470 KΩ 〃
	R23	〃	400 Ω RD 1 t±10%
1-203-338-00	R24	〃	470 KΩ RD 1/4 t± 5%
	R25	— deleted —	
	R26	Wire wound resistor	8Ω RD 3 t±10%
1-221-323	R27	Adjustable resistor	100 KΩ
	R28	Carbon resistor	22 KΩ RD 1/4 t± 5%
	R29	〃	10 KΩ 〃 〃
	R30	— deleted —	
	R31	〃	560 Ω 〃 〃
1-203-338-00	R32	〃	470 KΩ 〃 〃
1-203-118-00	R33	〃	1M Ω 〃 〃
1-203-088	R34	〃	30 KΩ RD 1/2 t±10%
1-203-123-00	R35	〃	120 KΩ RD 1/4 t± 5%
	R36	〃	22 KΩ 〃 〃
	R37	— deleted —	
	R38	Carbon resistor	3.3 KΩ 〃 〃
1-203-109-00	R39	〃	220 KΩ 〃 〃
	R40	〃	2 KΩ RD 1/4 t±10%
	R41	〃	4.7 KΩ RD 1/4 t± 5%
	R42	〃	39 KΩ RD 2 t± 5%
	R43	〃	1 KΩ RD 3 t±10%
1-205-206	R44	Enameled resistor	2 KΩ RE 20 t
	C1	Oil paper capacitor	0.05 μF 400 WV±20%
	C2	〃	0.1 μF
	C3	Electrolytic capacitor	5 μF 25 WV
	C4	〃 〃	30 μF 6 WV
	C5	〃 〃	30 μF 12 WV
	C6	Mylar 〃	0.1 μF 50 WV±10%
	C7	〃 〃	0.01 μF 〃 〃
	C8	〃 〃	0.002 μF 〃 〃
	C9	〃 〃	0.05 μF 50 WV±20%
	C10	Electrolytic 〃	25 μF 25 WV
	C11	Mylar 〃	0.02 μF 50 WV±10%
	C12	Electrolytic 〃	10 μF 350 WV
	C13	Oil paper 〃	0.05 μF 400 WV±20%
	C14	Electrolytic 〃	25 μF 25 WV
	C15	〃 〃	1 μF 350 WV
	C16	Mylar 〃	0.01 μF 50 WV±10%
	C17	MP 〃	0.5 μF 250 WV±20%
	C18	Mica 〃	100 pF DC 100 V±10%
	C19	〃 〃	500 pF
	C20	〃 〃	500 pF
	C21	Trimmer 〃	30~200 pF
	C22	Oil paper	0.0025 μF 600 WV±10%
	C23	〃 〃	0.001 μF 600 WV±10%
	C24	Electrolytic 〃	25 μF 50 WV
	C25	〃 〃	10 μF 350 WV
	C26	〃 〃	40+40 μF 350 WV
1-113-019	C27	MP 〃	1.8+0.7 μF AC 250 V
	C28	Mylar 〃	0.001 μF 50 WV±10%

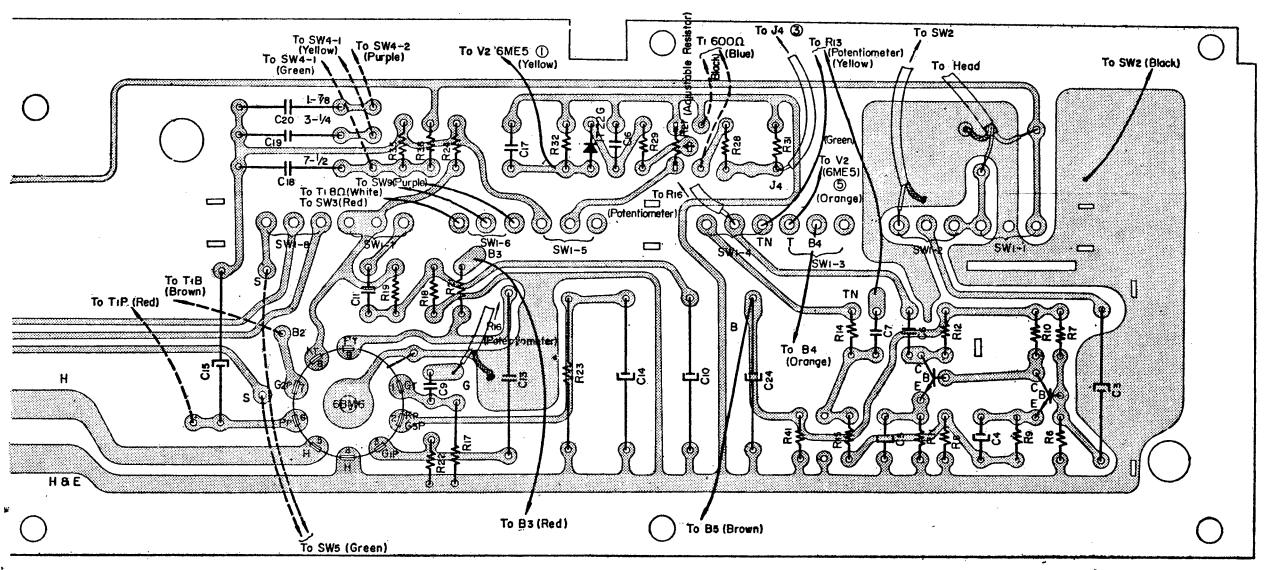


Printed Circuit Board of Model-362B
(Up to Serial No. 20750)

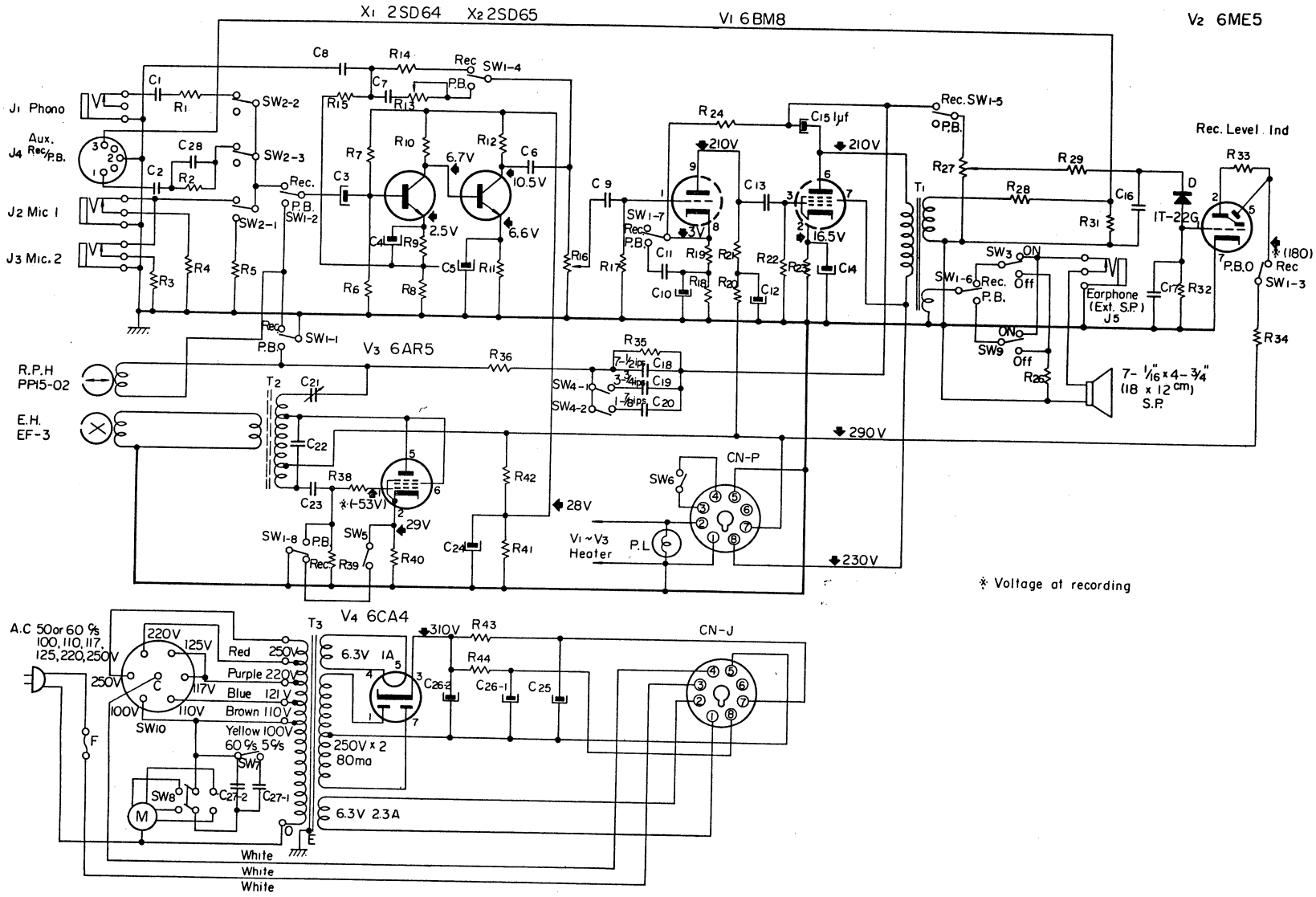




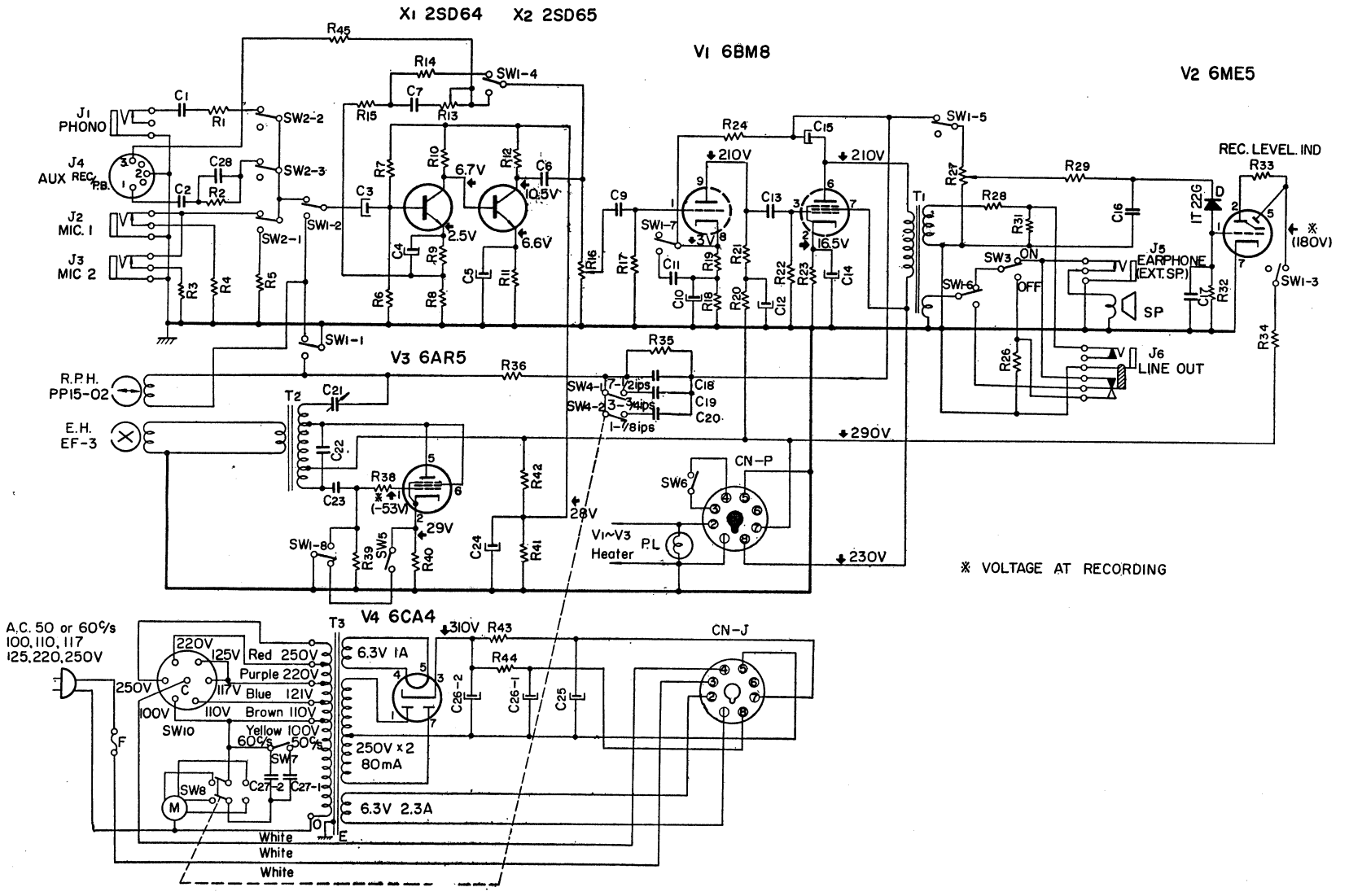
Printed Circuit Board of Model-362B
(After Serial No. 20751)



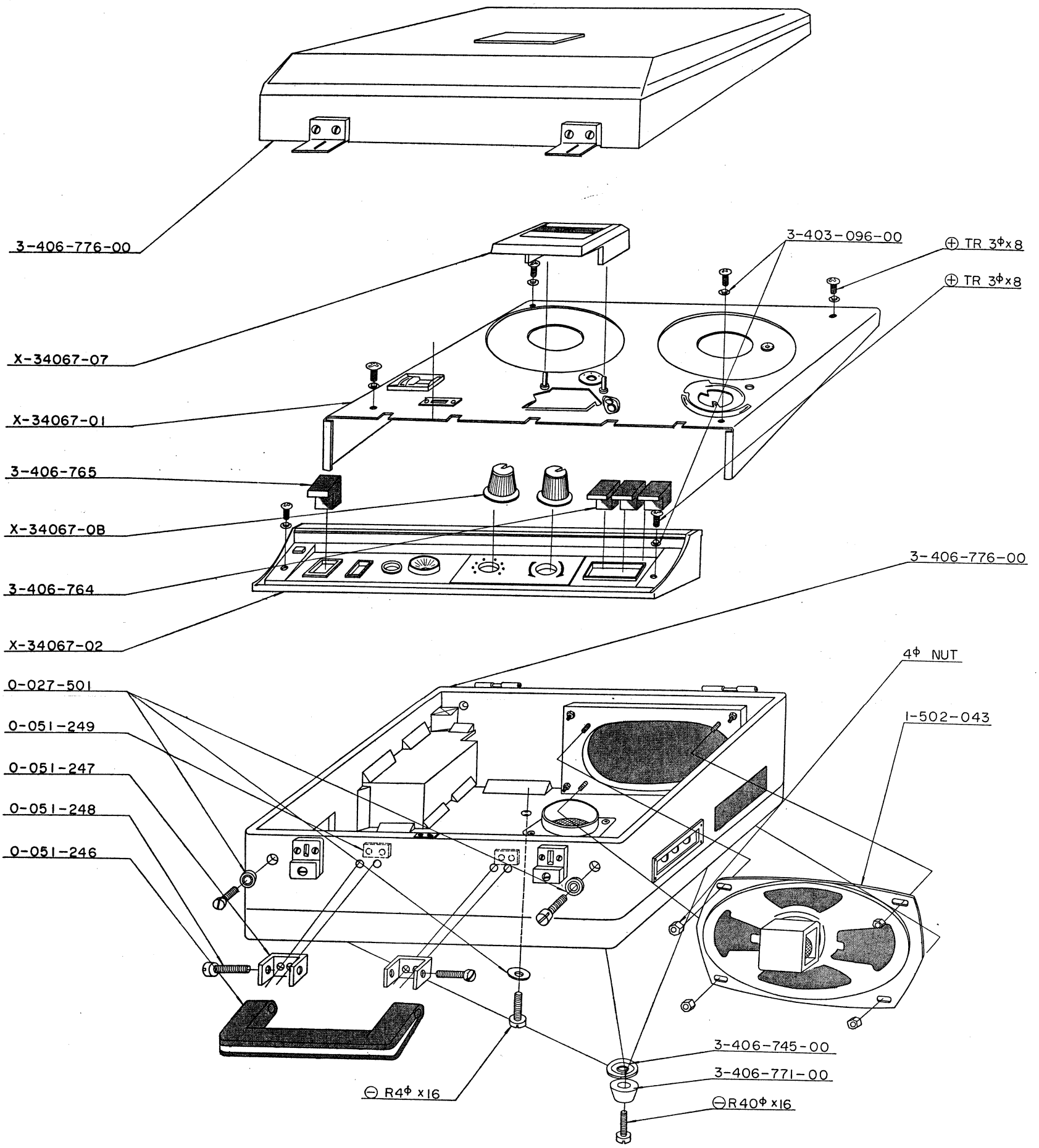
Schematic Diagram for Model-362 B
(Up to Serial No. 20750)



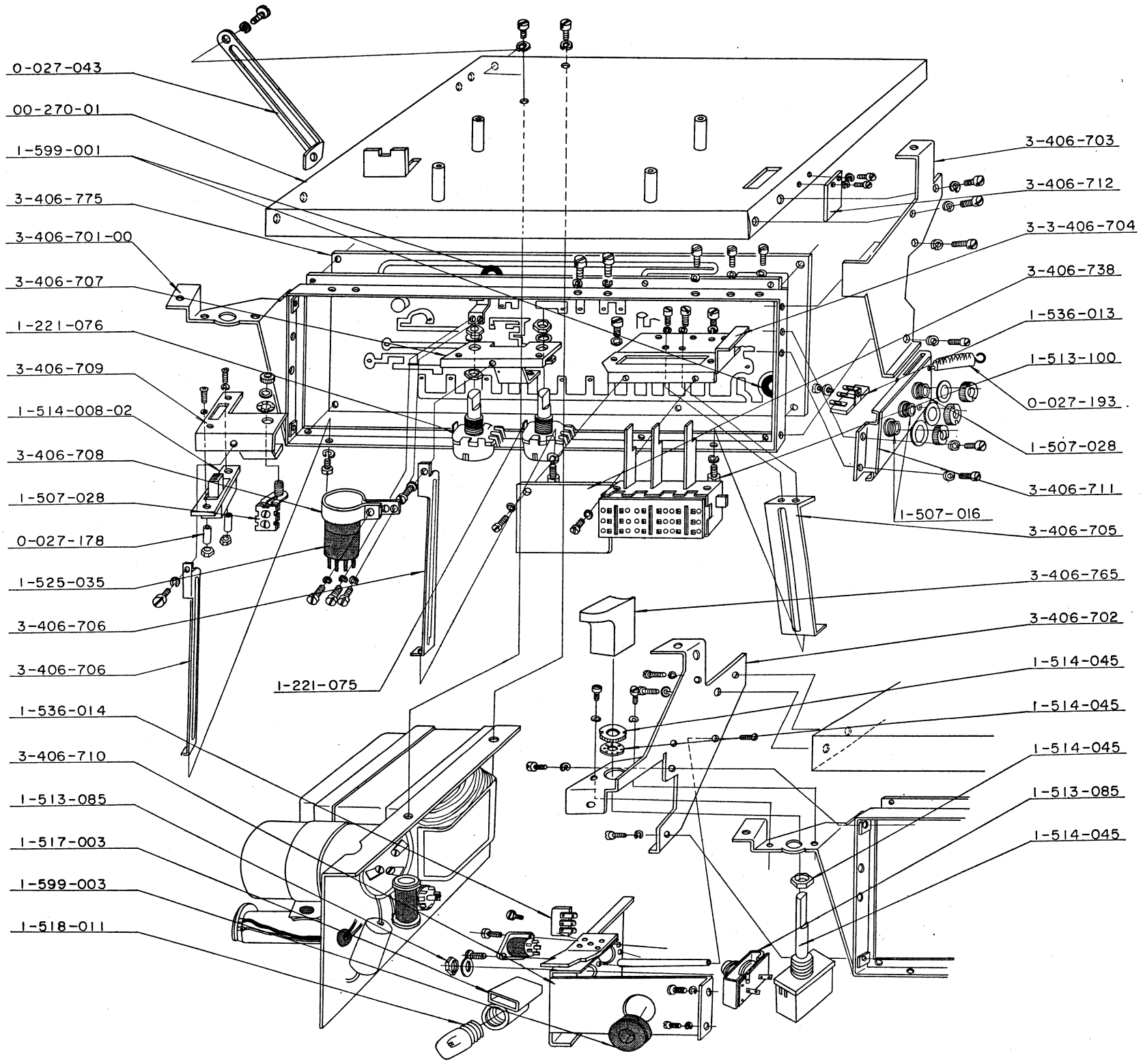
Schematic Diagram for Model-362 B
(After Serial No. 20751)



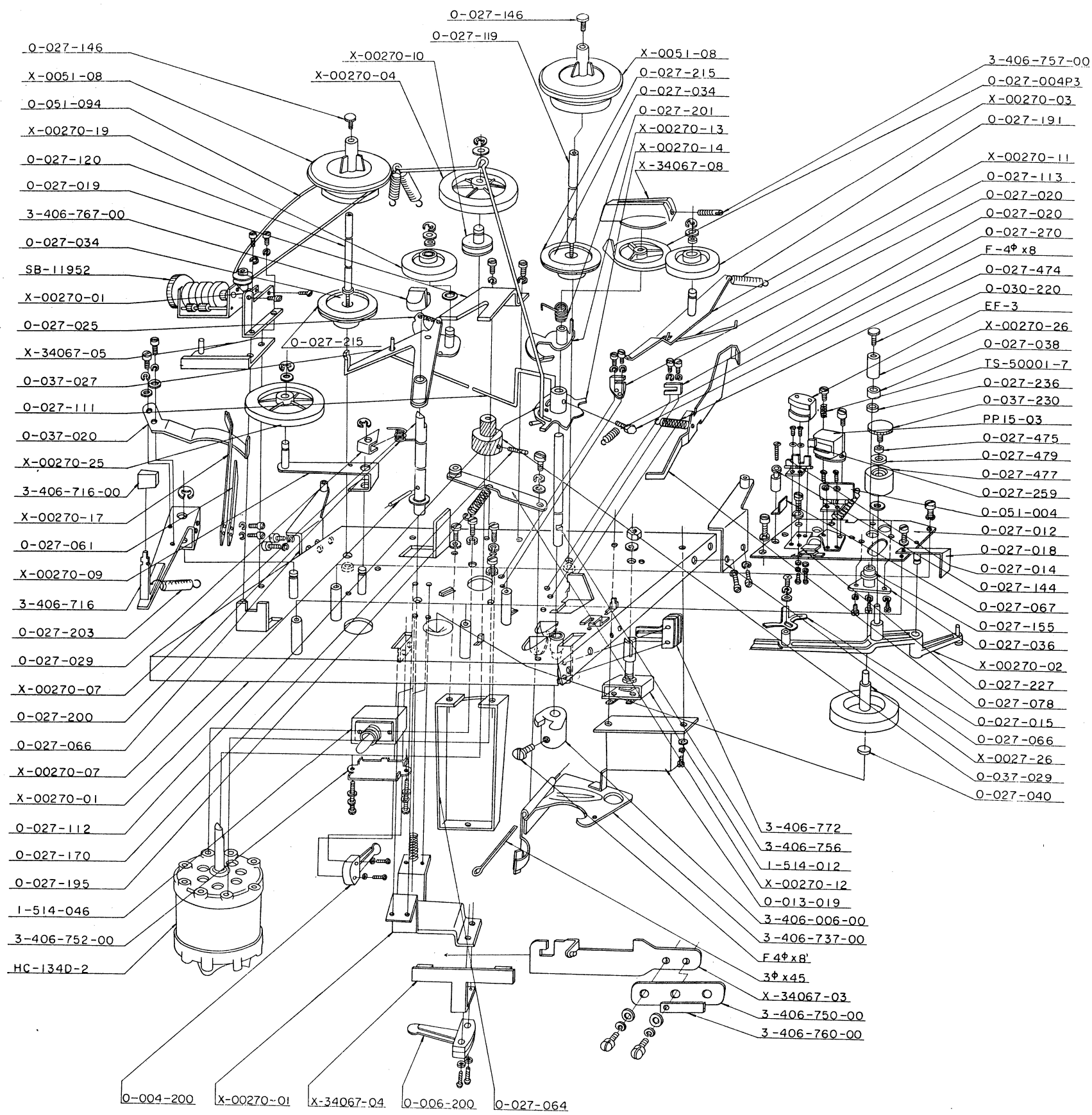
Exploded Diagram - 1



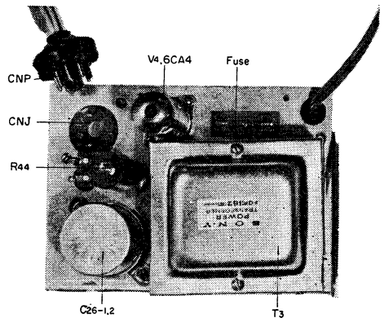
Exploded Diagram - 2



Exploded Diagram - 3

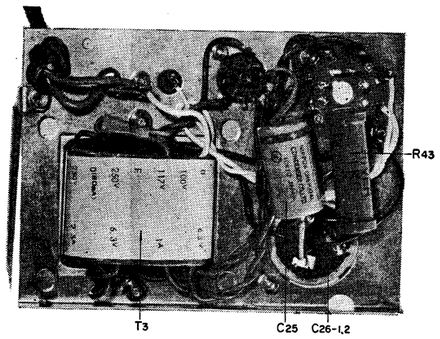


Top View of power Supply Section



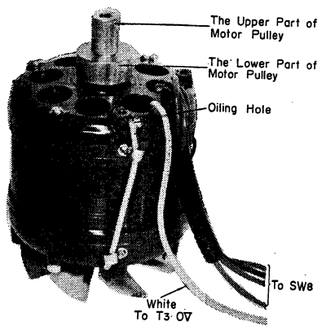
(Fig. 10)

Bottom View of Power Supply Section



(Fig. 11)

Motor

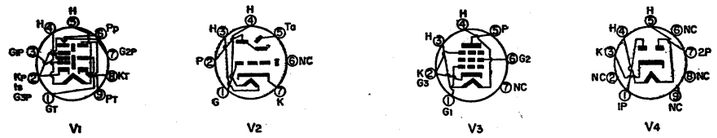


(Fig. 12)

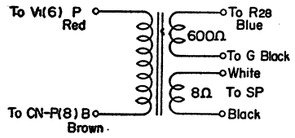
To Lubricate Top and Bottom Side Bearing :

Insert syringe needle into the hole as shown in Fig. 12.

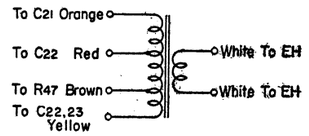
Pin Connections of Vacuum Tube



Output Transformer T_1



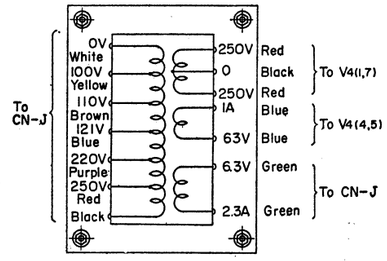
Oscillation Transformer T_2



Impedance

Primary	5.6 KΩ
Secondary	8Ω & 600Ω

Power Transformer T_3



Specifications for Microphone Model F-3 B

Sensitivity : — 61 dB (0 dB = 1 V/μ bar at 1 Kc/s)

Output Impedance : 10 KΩ (at 1 Kc/s)

Mic. Transformer :

	DC Resistance	Impedance (at 1 Kc/s)
Primary	1.2 Ω	15 Ω
Secondary	1,000 Ω	10 KΩ

Moving Coil :

DC Resistance	Impedance (at 1 Kc/s)
12 Ω	15 Ω

SONY CORPORATION

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